

REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1, 2, 4, 5, 7, and 8 are pending; and Claim 1 is amended.

The outstanding Official Action rejected Claims 1, 2, 4, 5, 7, and 8 under 35 U.S.C. § 103(a) is unpatentable over U.S. Patent No. 6,353,201 to Yamakoshi et al. (hereinafter Yamakoshi) in view of U.S. Patent No. 6,286,995 to Takahashi et al. (hereinafter Takahashi).

In view of this rejection, Claim 1 is amended to recite “a core cable of said RF cable has an end portion curved to match a connecting width of said plate-like electrode so as to form a smoothly curved continuous surface at a connecting portion provided between the curved end portion of the core cable of said RF cable and said plate-like electrode.” Support for changes to Claim 1 is found in Figure 3a and the corresponding written description in the specification.

Briefly recapitulating, Claim 1 is directed to a radio frequency power supply structure for use in a device generating plasma by charging a plate-like electrode, facing an earth electrode, with a radio frequency power. The radio frequency power supply structure supplies the plate-like electrode with the radio frequency power from an RF cable. The RF cable is positioned on an extended plane of a plane formed by the plate-like electrode to connect to the plate-like electrode. A core cable of the RF cable has an end portion curved to match a connecting width of the plate-like electrode so as to form a smoothly curved continuous surface at a connecting portion provided between the curved end portion of the core cable of the RF cable and the plate-like electrode, on an end peripheral portion of the plate-like electrode. The plate-like electrode forms a longitudinal grid plate shape facing the earth electrode having two lateral electrodes forming two mutually opposed end peripheral

portions of the plate-like electrode, and a plurality of longitudinal electrodes arranged between the two lateral electrodes so as to connect to the two lateral electrodes.

The claimed RF cable advantageously avoids a sudden change of impedance due to a discontinuous change of the power stream passage and reduces a reflection of the radio frequency power by having the end portion of the core cable of the RF cable curved to match a connecting width of the plate-like electrode to form the smoothly curved continuous surface.<sup>1</sup>

Turning now to the applied reference, Figure 1 of Yamakoshi describes a power supply portion of a ladder electrode in which power is supplied to at least two points on the ladder electrode. As shown in Figure 1, a ladder electrode of a vapor deposition apparatus is configured such that a plurality of electrode bars 12a are arranged in parallel with each other, and electrode bars 12b and 12c are connected to the corresponding opposite ends of the electrode bars 12a, thereby forming a ladder-like electrode. Power supply points 13 (13-1 to 13-4) are arranged axisymmetrically with respect to a reference line 14, which bisects one side of a RF discharge electrode 11, while being spaced a predetermined distance from the reference line 14. A coaxial cable 15 is used as a power transmission line supplying power to the four power supply points 13-1 to 13-4 on the discharge electrode.<sup>2</sup>

Claim 1 is distinguishable over Yamakoshi as the applied reference fails to disclose or suggest *a core cable of said RF cable has an end portion curved to match a connecting width of said plate-like electrode so as to form a smoothly curved continuous surface*. Although Figure 1 of Yamakoshi shows the coaxial cable 15 connected to the discharge electrode 11 at the power supply points 13-2 to 13-4, Yamakoshi fails to disclose or suggest that the coaxial cable 15 has *an end portion curved to match a connecting width of the discharge electrode 11 so as to form a smoothly curved continuous surface* as required by Claim 1.

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<sup>1</sup> See specification at page 17, lines 7-13.

<sup>2</sup> See Yamakoshi at column 11, lines 34-59.

Turning now to Takahashi, Figures 4A-4C of Takahashi illustrate a sheath pin 1 inserted in a cylindrical spacer 10. Takahashi describes that after interposing the spacer 10 between the sleeve 6 and an outer cylinder 1A of the sheath pin 1, two points in opposed relation to each other along a circumferential direction are caulked from outside of the sleeve 6 using a caulking die 11. Takahashi further describes that a pair of core wires 1b and lead wires 4 are connected to each other through lead wire coupling portions B1.<sup>3</sup>

Applicants submit that a *prima facie* case of obviousness has not been presented because Takahashi is non-analogous art. It is well established that for references to be considered analogous art, they must either be from the same field of endeavor as the application or they must be reasonably pertinent to a particular problem with which the inventor is involved. See MPEP 2141.01(a) (citing In re Clay, 23 USPQ2d, 1058, 1060 (Fed. Cir. 1988)).

Claim 1 is directed to a radio frequency power supply structure having an RF cable. Applicants submit that RF cables are designed to match impedances for high frequency devices. Contrary to Applicants' claimed invention, Takahashi describes a temperature sensor for detecting a temperature of an object fluid flowing in a fluid passage.<sup>4</sup> Applicants respectfully submit that a temperature sensor is not operated at radio frequencies, and there is no reason to operate a temperature sensor at radio frequencies.

Thus, Takahashi is not in the same field of endeavor of Applicants' claimed invention. Moreover, one of ordinary skill in the art would not look to a temperature sensor for designing an RF cable to avoid a sudden change of impedance when connecting the RF cable to a plate-like electrode. Accordingly, for these reasons, Takahashi is non-analogous art.

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<sup>3</sup> See Takahashi at column 8, lines 19-27.

<sup>4</sup> See Takahashi at Field of Invention.

Assuming *arguendo* that Takahashi is analogous art, Applicants submit that Takahashi fails to disclose or suggest all the features of amended Claim 1 for the following reasons.

The outstanding Official Action identifies the lead wire coupling portions B1 as a soldering connector forming a smoothly curved continuous surface between the core wires 1b and the lead wires 4.<sup>5</sup> However, as required by Claim 1, *a core cable of said RF cable has an end portion curved to match a connecting width of said plate-like electrode*. Takahashi merely describes the core wires 1b and the lead wires 4 coupled together with the coupling portions B1, which are soldering connectors separate from the core wires 1b and the lead wires 4. Takahashi neither discloses nor suggests that the coupling portions B1 are an end portion of a core cable of an RF cable. Moreover, Takahashi neither discloses nor suggests that the core wires 1b or the lead wires 4 are a *core cable* of an RF cable. Furthermore, Takahashi neither discloses nor suggests that the core wires 1b or the lead wires 4 are a *plate-like electrode*.

Furthermore, Figures 5A and 5B of Takahashi illustrate the core wires 1b and the lead wires 4 having the same connecting width. Accordingly, it is not necessary for the core wires 1b to have *an end portion curved to match a connecting width* of the lead wires 4. Conversely, it is not necessary for the lead wires 4 to have *an end portion curved to match a connecting width* of the core wires 1b.

Additionally, because Applicant's claimed *core cable of said RF cable has an end portion curved to match a connecting width of a said plate-like electrode*, no intermediary connecting means is necessary to connect the core cable of the RF cable to the plate-like electrode. Contrary to Applicants' claimed invention, because neither the core wires 1b are

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<sup>5</sup> See Official Action of May 2, 2007 at page 3, lines 5-8.

curved to match the lead wires 4, nor the lead wires 4 are curved to match the core wires 1b, a coupling portion B1 is required to solder the core wires 1b to the lead wires 4.

Accordingly, Applicants submit that Yamakoshi and Takahashi fail to disclose or suggest all the features of Claim 1 as amended. Accordingly, Applicants respectfully request that the rejection of Claim 1, and the claims depending therefrom, under 35 U.S.C. § 103(a) be withdrawn.

Consequently, in view of the present amendment and in light of the foregoing comments, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal allowance. A Notice of Allowance is earnestly solicited.

Respectfully submitted,

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